

Chapter 2: Implementing the Plan

How are we going to implement this plan to reach our goals?

The WRIA 8 Steering Committee's Mission and Goals statements that direct the development and implementation of this plan are ambitious. They encourage an approach to plan implementation that provides confidence that the activities we undertake are effective and timely and that the WRIA partners develop and use tools to show progress toward achieving the Mission and Goals. They reflect deeply held interests in returning chinook salmon in the Lake Washington/Cedar/Sammamish Watershed to robust health, making strategic and cost-effective decisions about how to spend limited resources, and maintaining the region's quality of life. Meeting any one of these interests alone would be difficult, and crafting an approach to meeting them all together is truly challenging.

In recognition of the challenge presented in the Mission and Goals, this plan incorporates principles of adaptive management as a guide for plan implementation. This reflects the basic assumption that adaptive management principles offer strategies and techniques that are useful in addressing the unique challenges of salmon recovery in WRIA 8. Using adaptive management principles appropriately and strategically depends foremost upon establishing a common understanding among decisions-makers and stakeholders about what adaptive management is – and isn't.

What is adaptive management and how will it help plan implementation?

There is a growing willingness to apply adaptive management principles in plan development and implementation processes like that in WRIA 8. A number of relevant indications of this willingness are available, including the *Coastal Conservation Guidance*¹ from the National Oceanic and Atmospheric Administration (NOAA); the *Technical Guidance for Watershed Groups in Puget Sound*² from the Puget Sound Technical Recovery Team (TRT); and the Washington Department of Fish and Wildlife's (WDFW) *An Outline for Salmon Recovery Plans*³. Each of these documents, produced by an agency with a significant role in salmon conservation and recovery, recommends the application of adaptive management principles in the development of plans intended to return salmon populations to robust health.

The emerging willingness among decision-makers, professional staff, and stakeholders to apply adaptive management principles offers advantages and disadvantages. It offers the benefit of a belief in the value of adaptive management in tackling complex natural resource management problems, particularly those that have significant economic and social implications. It offers the drawback of being grounded in a potentially incomplete understanding of the rigor and foresight that are essential for consistent and comprehensive application, leading ultimately to the creation of programs that are only nominally adaptive and fail to take full advantage of the principles and techniques. Crafting a shared definition of adaptive management is essential for ensuring its principles are put to their best use in the WRIA 8 process.

¹ <http://www.nwr.noaa.gov/1salmon/salmesa/pubs/salmrest.pdf>

² <http://www.sharedsalmonstrategy.org/files/Guidance%20Document02-03-03a.pdf>

³ http://www.wa.gov/wdfw/recovery/recovery_model.htm

A significant body of literature⁴ exists that helps define what adaptive management is. In a growing number of cases this literature is drawn from real world examples of the application of adaptive management strategies and techniques⁵. The literature provides a picture of what adaptive management is. Several consistent, defining themes are listed here, with a description of the relevance of each to the WRIA 8 plan.

Adaptive management is:

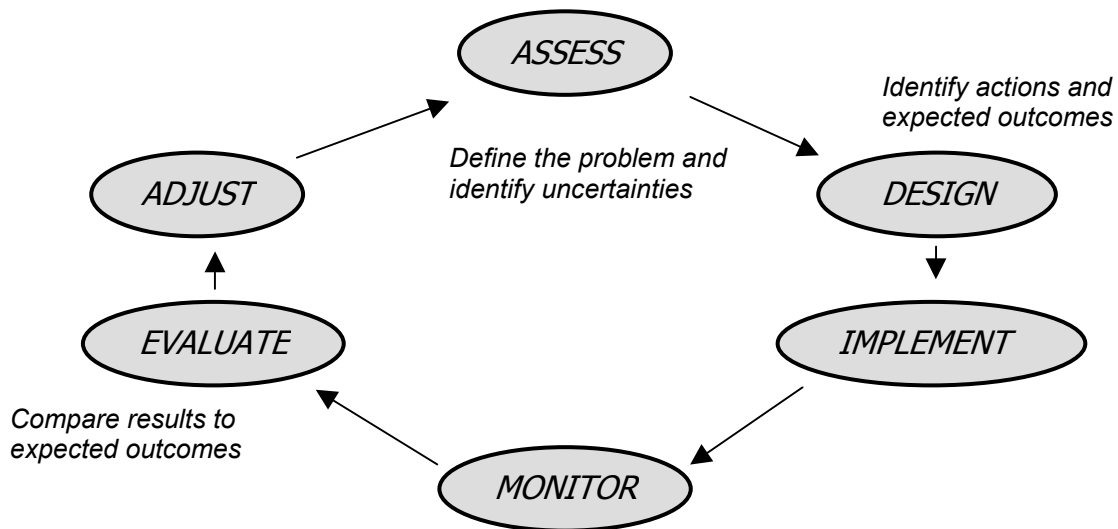
- *A systematic process for improving future management actions by learning from the outcomes of implemented actions*⁶. It may be helpful to think about this theme as implementing a series of activities that support learning and strategic decision-making. One way to depict such a process is shown in Figure 1. It should be noted that the process shows both a series of specific activities and arrows that indicate the importance of establishing purposeful and explicit connections between the activities. It can be argued that undertaking actions that address the activities without giving similar consideration to the connections between them will lead to ineffective or inefficient plan implementation.
- *Taking action even though there is uncertainty.* The long-standing interest of WRIA 8 partners in salmon conservation, the gravity of the salmon conservation challenge and the availability of funding for salmon conservation have all ensured that important actions have been undertaken. While these actions continue and new ones are implemented, it is important to recognize the unavoidable uncertainties inherent in complex ecological challenges like salmon conservation. These uncertainties originate in the unpredictability of the response of salmon to habitat management actions, the limits of existing analytical techniques to accurately capture this response, and the varying – and potentially very long – timeframes necessary for data collection to accurately describe the response. This uncertainty should be used to foster a sense of urgency to implement the most effective actions.
- *Communicating information to the public and building understanding.* Again, learning is an integral part of plan implementation within an adaptive management approach. As plan implementation moves forward, more will be learned about how salmon use the watershed and how habitat actions can and do benefit them. Implementers will need ways to communicate what they learn with those with a stake and an interest in how well the plan works.

⁴ A very useful collection of the seminal literature describing adaptive management principles and how they can be applied can be found at <http://www.iatp.org/AEAM>.

⁵ Glen Canyon Dam Adaptive Management Program: <http://www.usbr.gov/uc/envprog/amp/index.html> ; USGS Adaptive Environmental Assessment Applied to the Upper Mississippi River: http://www.umesc.usgs.gov/management/bjohnson_5002561.html; EPA Mississippi River Basin Adaptive Management Program: <http://www.epa.gov/msbasin/ia/chap6.html>

⁶ From David Marmorek/ESSA, "What is Adaptive Management?", a presentation to the Washington Trout, / Seattle Public Utilities Adaptive Management Conference, February 13-14, 2003; Seattle, WA

Figure 1 - Illustration of an Adaptive Management Process



- *Setting reasonable expectations and timeframes.* Both the technical limitations on predicting and diagnosing the response of salmon to habitat actions and the long timeframe needed to draw confident conclusions encourage cautious optimism about the near-term benefits of habitat actions. An adaptive management approach calls for quantitative and qualitative statements of what WRIA 8 partners hope to achieve through the plan and the use of analytical tools that give a sense of how actions reach those goals and objectives. It also calls for building and sustaining an organization that can drive implementation of actions over the timeframe within which WRIA 8 partners can realistically expect to reach them.
- *Expecting surprise and capitalizing on “crisis”.* One thing that is certain in implementing actions over the near and long term is that habitat and political or social conditions change unexpectedly and that salmon will respond in ways that contradict assumptions. While the actions recommended in the plan should be based upon reliable and credible technical information, plan implementation should go forward with openness toward learning from the unexpected. Denying that the results of some actions are surprising, or worse, avoiding analysis of unexpected results, lessens the ability of WRIA 8 partners to make informed decisions and increases the likelihood that opportunities will be missed for future cost-effective actions.
- *Distinguishing mistakes from failure.* The actions WRIA 8 partners commit to and implement will rely on scientists’ best -- but probably incomplete -- understanding of biology and ecology. Therefore a solid scientific foundation must be created that will allow implementers to conclude when the appropriate response to assessment of progress is “We’ve learned we need to correct our strategy” or when it should be “We’re never going to achieve our goal!” Not every instance in which expectations are not met means the failure of the overall effort, but the tools need to be developed that will allow implementers to know the difference.
- *A means to reduce the risk of insufficient investments and misdirection of future funding.* There is considerable interest in making timely and cost-effective allocations of limited resources to make habitat improvements that support achievement of salmon conservation

goals. Adaptive management provides techniques and tools that support using actions as learning tools that can direct the next conservation dollar to the most beneficial action at that time.

As important as it is to define what adaptive management is, it is equally important to note the limits of adaptive management and some misunderstandings about approaches or actions that can be part of an adaptive management program. Building an adaptive management program, even with the best intentions, that promises unrealistic outcomes or incorporates actions or perspectives that are not supportive of learning and adaptation adds certainty that the program will not meet its goals. A few examples of “what adaptive management isn’t”, reflective of common misunderstandings about it and its inherent limits, include:

- *A parking lot for actions that can’t be done or funded right now*
- *Justification for delaying meaningful action*
- *“Trial and error”*
- *Something that only scientists do*
- *A way to eliminate differences in values*
- *A mandate to start from scratch if results are less than optimal*

In summary, implementing this plan using adaptive management principles offers several fundamental advantages compared to a non-adaptive approach. First, it makes learning a specific task shared by all involved. Second, it encourages implementers to clearly describe their assumptions and hypotheses about the effectiveness of their actions. Third, it recognizes unavoidable uncertainties in the work as a basis for creating realistic expectations. Finally, it capitalizes on opportunities to learn, assumptions about effectiveness of actions, and uncertainties inherent in salmon conservation to support cost-effective investments of dollars and time over the near and long term.

Why is an adaptive approach appropriate for implementing the WRIA 8 plan?

With a clear understanding of what adaptive management is, the next question to be asked is: Are the ecological, political, and social circumstances in WRIA 8 amenable to the use of an adaptive approach in implementing the plan? As sound as the principles and concepts of adaptive management may be, the complexity of the salmon conservation challenge – as reflected in the Mission and Goals – sets a high bar for them to be of value in WRIA 8.

Practitioners of adaptive management, after several decades of experience in applying its principles to real decision-making processes, offer a picture of the conditions that favor the use of adaptive management in processes like the WRIA 8 salmon planning process. One practitioner, Kai Lee, provides a list of such conditions⁷:

- *A mandate for action under uncertainty*
- *Awareness of experimental nature of work*
- *Focus on improving conditions over biological timeframes*
- *Recognition that pristine conditions are not achievable*
- *Resources are sufficient to measure ecosystem-scale factors*

⁷ From Lee, Kai. Compass and Gyroscope: Integrating Science and Politics for the Environment. Island Press. Washington D.C. 1993. p. 62-63.

- *Analysis tools allow ecosystem-scale investigation*
- *Hypotheses about the effects of actions can be formulated*
- *Encouragement to learn from experience*
- *Institutional patience and stability for long-term outcomes*
- *Implementers choose among actions*

A quick review of this list reveals that the conditions in WRIA 8 are largely favorable toward a plan implementation approach that employs adaptive management. Several of these generic conditions are worth noting for their close similarity to current conditions in WRIA 8. For example, there is a clear “mandate for action under uncertainty”. Technical work has captured what scientists know about salmon and their habitat needs with some certainty, but it has also identified where current knowledge is inadequate to understand the effects of actions on habitat and, ultimately, salmon. These gaps in knowledge haven’t caused the WRIA 8 partners to lose their sense of urgency to turn what is known into actions believed to be beneficial and effective. A second example is in regard to “hypotheses about the effects of actions can be formulated”. The technical tools (Ecosystem Diagnosis and Treatment Model [EDT], the Watershed Evaluation Framework, and the Viable Salmonid Population [VSP] Filter) developed and used by the WRIA 8 Technical Committee are intended to help those identifying and recommending actions describe their expectations of how those actions will benefit salmon. Comparing this list more fully to current conditions in WRIA 8 would be a useful step in assessing the ease of implementing the plan using an adaptive management approach.

What is necessary to support adaptive implementation of the WRIA 8 plan?

The WRIA 8 Adaptive Management Work Group (AM Work Group) has distilled the adaptive management literature to identify the elements of an adaptive management-based program to implement the WRIA 8 plan. Creating an implementation structure that lacks any of these elements would limit the ability to adapt in response to knowledge gained through the implementation of actions and increase the likelihood that investments would not be as cost-effective in working toward the Mission and Goals. Elements for an adaptive management program are:

- *Goals*
- *Assumptions and uncertainties about key habitat and species factors related to the goals*
- *Specific actions believed to contribute to achieving the goals*
- *Hypotheses about the contribution of the actions to the goals*
- *Measures to assess the effectiveness of the actions*
- *Data collection supporting the measures to assess effectiveness*
- *Communication at all levels of the results of actions and the improvement of knowledge*
- *Resources sufficient to carry out each element over the necessary time period and geographic area*
- *An organizational (decision-making) structure that defines roles and responsibilities for each element*
- *Commitments to implement the plan and its actions*
- *A systematic process that links these elements together predictably*

How should adaptive management principles be tailored for implementation of this plan?

With its history of actions taken through collaboration (e.g., the Watershed Forums, the Cedar River Council, basin plans, and the WRIA 8 Steering Committee and Forum), WRIA 8 partners have begun creating the tools for implementing the plan in an adaptive management framework. A comparison between the list of elements presented above and the completed and ongoing activities within the WRIA 8 planning process shows that substantial steps have already been taken. The following table shows where progress has been made toward effective plan implementation, using an adaptive management approach. Additional information about the issues papers mentioned in the table below can be found in the next section.

Table 1 – Status of Elements Needed for Plan Implementation

Elements needed for plan implementation	How they are addressed
<i>Goals</i>	<i>Steering Committee Mission and Goals statements; desired habitat conditions from EDT</i>
<i>Assumptions and uncertainties about key habitat and species factors related to goals</i>	<i>Limiting Factors Analysis; EDT; Watershed Evaluation Framework; VSP Filter</i>
<i>Specific actions believed to contribute to achieving the goals</i>	<i>In part through actions material developed for December 31 submittal [to be addressed fully in the March draft plan]</i>
<i>Hypotheses about the contribution of the actions to the goals</i>	<i>[to be developed for actions from EDT, Watershed Evaluation Framework, and VSP]</i>
<i>Measures to assess the effectiveness of the actions</i>	<i>Addressed in part through Professional Assessment and NTAA progress report [to be addressed fully in the March draft plan] See Tab 7 - Issue paper on Measures.</i>
<i>Data collection supporting the measures to assess effectiveness</i>	<i>Addressed in part through Chinook Spawner Surveys [to be addressed fully in the March draft plan] See Tab 7 - Issue Paper on Measures.</i>
<i>Communication at all levels of the results of actions and the improvement of knowledge</i>	<i>Addressed in part through NTAA progress report and proposed public review process for plan [to be addressed fully in the March draft plan] See Tab 8 - Issue Paper on Organization and Structure.</i>
<i>Resources sufficient to carry out each element over the necessary time period and geographic area</i>	<i>[to be addressed fully in the March draft plan] See Tab 9 - Issue Paper on Funding and Tab 8 - Issue Paper on Organization and Structure.</i>
<i>An organizational (decision-making) structure that defines roles and responsibilities for each element</i>	<i>In part through interlocal agreement and Professional Assessment [to be addressed fully in the March draft plan]; See Tab 8 - Issue Paper on Organization and Structure and Tab 10 – Issue Paper on Commitments.</i>
<i>Commitments to implement the plan and its actions</i>	<i>[to be addressed fully in the March draft plan] See Tab 10 - Issue Paper on Commitments.</i>
<i>A systematic process that links these elements together predictably</i>	<i>[to be addressed fully in the March draft plan] See Tab 8 - Issue Paper on Organization and Structure and Tab 10 - Issue Paper on Commitments.</i>

The above table also provides a clear signal that there are several additional, and essential, questions to resolve for WRIA 8 partners to fully assemble an effective implementation structure for the plan. These questions primarily address four prominent issues:

- Measures and monitoring for assessing effectiveness of plan actions
- Organizational and decision-making structures and processes
- Resources to support plan and action implementation
- Commitments for plan and action implementation

Resolving these issues will require tailoring generic adaptive management principles to the specific ecological, social and political circumstances in WRIA 8. Key to this resolution are engaging the Steering Committee (and eventually the Forum) as a deliberative body that will make the critical decisions on plan substance that address these issues. To help the Steering Committee complete this tailoring, the Work Group has prepared Issue Papers on the four issues listed above and is developing a recommendation for a facilitated discussion to take place in early 2004. Thorough understanding and consideration of these issues will help decision-makers identify the actions, build the mechanisms, commit to the roles and responsibilities, and implement the actions that provide the certainty needed for effective plan implementation. The Issue Papers are provided separately as part of the December 31st work product for review and consideration by the Steering Committee.

Introduction to the Adaptive Management Issue Papers

The draft outline for the WRIA 8 plan calls for the final plan to include a description of the fundamental elements of an adaptive management program that supports the Steering Committee's Mission and Goals statements. The draft text provided above for Chapter 2 of the plan is intended to serve as the general description of the elements and how they will be applied in WRIA 8.

Using adaptive management to the advantage of WRIA 8's salmon and salmon stakeholders calls for tailoring of generic adaptive management principles to the specific ecological, social and political circumstances within WRIA 8. To help accomplish this, the plan outline also calls for the description of specific strategies, activities, and roles and responsibilities that will address the fundamental elements of adaptive management through plan implementation. Chapters 7 through 10 in the plan outline are intended to present the detailed description of how these elements will be addressed. These chapters will specifically address the following subject matter:

- **Chapter 7:** *How will we learn together? How will we know if we are doing the right things, and enough of them, at the right place and time?* (measures and monitoring for assessing action and plan effectiveness)
- **Chapter 8:** *How will we ensure that our resources are being used effectively/ strategically?* (organizational and decision-making structures, roles and responsibilities)
- **Chapter 9:** *How will we gather the local/regional/state/federal/private resources necessary to support effective recovery actions?* (providing sufficient funding for plan implementation; maintaining and/or developing fund sources)
- **Chapter 10:** *Who is committed to implementing this Plan and achieving its goals?* (commitments for action and plan implementation; assurances offered and sought that can support plan implementation)

While the background text in Chapter 2 could be drafted drawing from existing WRIA 8 and adaptive management literature, the text for Chapters 7 – 10 can be developed only after direct engagement with and deliberation by the Steering Committee on the elements they address. The Issue Papers on these four elements are intended to provide options for discussions within the Steering Committee – and potentially with the WRIA 8 Forum – that will lead to decisions on the substance of the elements. These decisions will form the chapter text needed for the final plan. The Issue Papers were drafted jointly by the members of the WRIA 8 Adaptive Management Work Group (AM Work Group) and are ready for feedback from the WRIA 8 Steering and working committee members.

For ease of review each Issue Paper generally follows the same outline and addresses the following topics:

- **Key Questions** to be resolved for the final plan
- **Assumptions** that shape specific options for resolving the Key Questions
- **Background** information essential for considering the Key Questions
- **Options** for resolving the Key Questions

General Assumptions Guiding Consideration of Issues

There are several general assumptions that underlie the issues presented in the Issue Papers. These assumptions touch on key components of plan implementation, including the anticipated length of time for implementation of specific actions in the plan and for determining progress toward achieving the Mission and Goals; the integration of habitat management actions with harvest and hatchery activities that will affect salmon conservation; and the connections among efforts at the local, watershed, regional and Puget Sound levels. These assumptions are as follows:

- The WRIA 8 plan will have a near term horizon of 5 to 10 years for specific recommendations and a long-term horizon of 20 to 25 years for assessing progress toward harvestable and sustainable chinook stocks. The time horizon for fully achieving recovery of chinook populations, with a high degree of statistical confidence, will be longer than 25 years. The initial recommendations will evolve and extend over time through the evaluation of the success of implemented actions and by applying additional knowledge learned about what salmon need to survive.
- The stakeholders producing the WRIA 8 plan are responsible only for the habitat-based aspects of chinook survival and productivity. Other entities, therefore, must take actions on harvest or hatchery impacts to restore healthy chinook populations. Ocean conditions are also outside the influence of local governments and can have significant influence on salmon spawner abundance.
- Local jurisdictions in WRIA 8 support the Puget Sound Shared Strategy as a way to coordinate ESU-level recovery through an iterative process and to address cross-watershed issues. The Shared Strategy is expected to help WRIA 8 partners address key issues by fostering integration of habitat, hatchery and harvest actions, helping deliver technical assistance from federal and state agencies, and supporting the development of funding mechanisms.

Each Issue Paper includes a few additional assumptions that are specific to the issue it addresses.

How much is regional? How much is local?

While the Issue Papers consider a series of topics separately, the questions they pose and the options they offer are inter-connected. This is in part a reflection of the prominence of one issue affecting plan implementation: Which activities are best undertaken in a collaborative, regional approach and which are done more effectively relying upon individual stakeholders? There is potential for using a variety of arrangements, ranging from formal to informal, among WRIA 8 partners to implement the plan. Each of these arrangements calls for different levels of collaborative effort among WRIA 8 partners, and possibly extending to parties not directly involved in the development of the plan. Deliberating over and resolving this issue will provide important perspective on how key components of plan implementation are addressed.

How do we define success?

The Issue Papers also exhibit overlap that originates from a second prominent issue: How do WRIA 8 partners define the success of the plan? This question has major technical, institutional, political and economic implications and is difficult to answer without consideration of the potential implications of any answer. There is likely to be a range of perspectives within the Steering Committee about which implications are more pressing and should be more influential in guiding plan development and implementation. For some people success should be defined foremost in the context of the perceived limitations on the funding available for plan implementation. For others, success is more appropriately defined in terms of changes to salmon habitat and populations over which WRIA partners have the most control. For still others, the driving considerations will be different from these. The Issue Papers have been crafted in anticipation of this range of perspectives and with an interest in supporting the Steering Committee in developing a shared definition of success for the plan.

Recommended Approach to Resolve Issues

The implications of the material presented in these papers will be best understood after at least a full review of each Issue Paper, and most likely augmented by discussion among Steering and Synthesis Committee members. The AM Work Group has two recommendations regarding the process for resolving the issues identified in these papers. The actions recommended are intended to support both a full understanding and resolution of the issues.

First, the Work Group recommends that the Steering Committee and Synthesis Committee set aside meeting time starting in January 2004 specifically for review and resolution of these issues. The AM Work Group recommends that these issues be deliberated upon by the Steering Committee in the following order:

- Organizational and decision-making structures
- Measures and monitoring for assessing effectiveness
- Fund source maintenance and development
- Commitments for plan and action implementation

Second, the AM Work Group recommends that the Steering Committee consider using professional, independent facilitation services to assist them in reaching resolution in a timely manner at working sessions and retreats as Steering Committee members have suggested.